

KIC 009090909

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009090909-01	OBS	No	81.614718	166.490233	4856.8	12.753	8.9	6.5	0.56	3683	4.98	0.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009090909-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

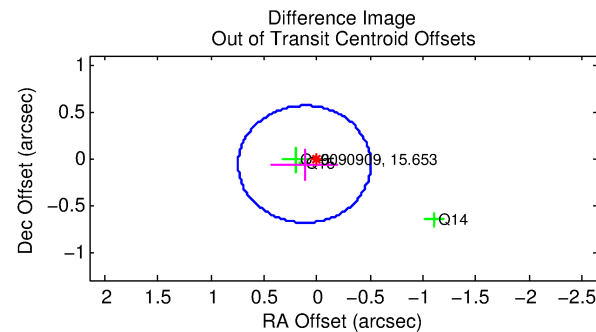
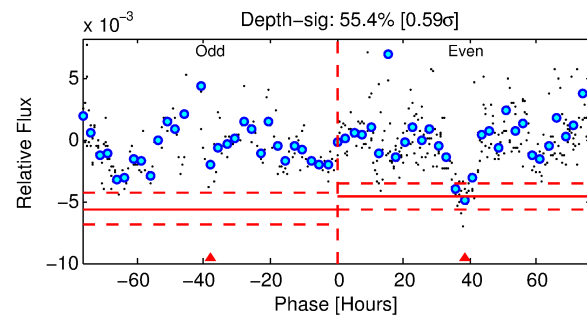
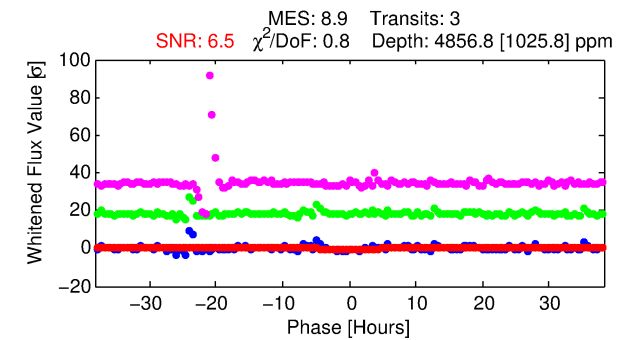
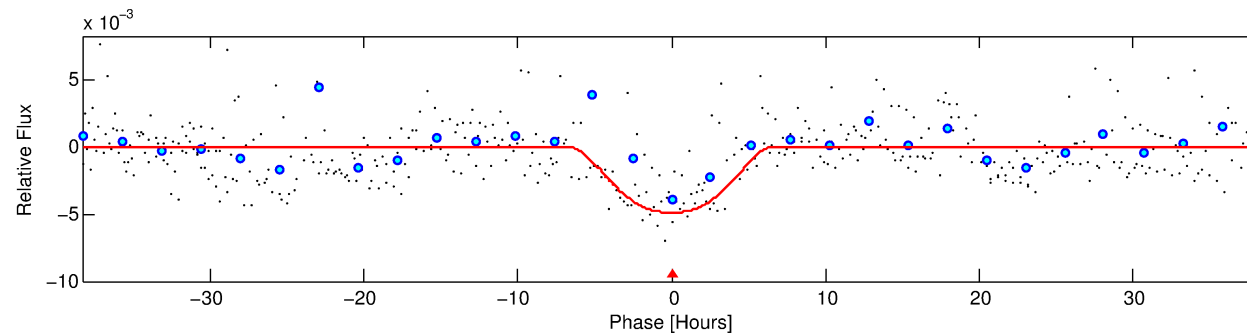
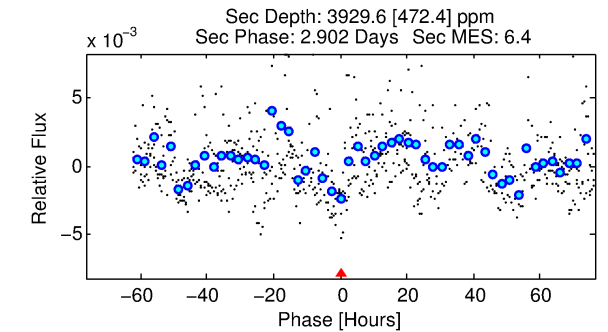
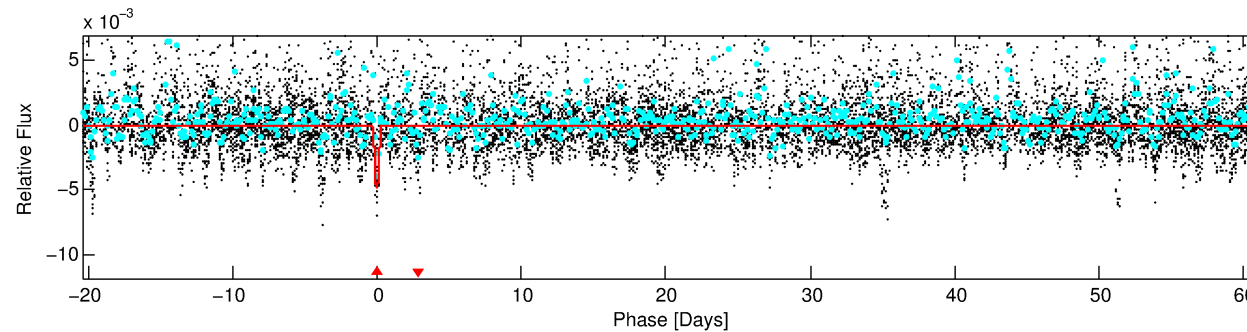
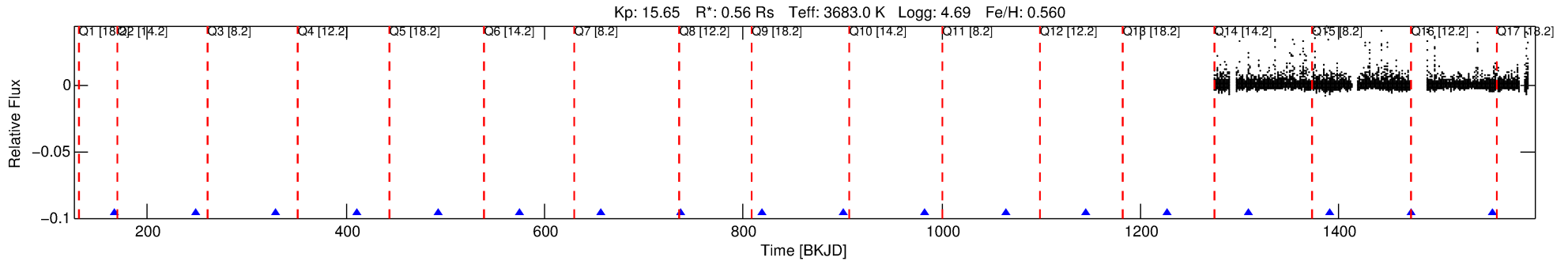
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009090909-01

No Significant Match Found

DV One-Page Summary

KIC: 9090909 Candidate: 1 of 1 Period: 81.615 d



DV Fit Results:

Period = 81.61472 [0.01341] d
Epoch = 166.4902 [0.2089] BKJD
Rp/R* = 0.0811 [0.0135]
a/R* = 27.93 [4.66]
b = 0.92 [0.04]
Seff = 0.56 [0.13]
Teq = 221 [12] K
Rp = 4.98 [1.11] Re
a = 0.3042 [0.0353] AU
Ag = 8069.08 [3128.80] [2.58σ]
Teffp = 3239 [315] K [9.58σ]

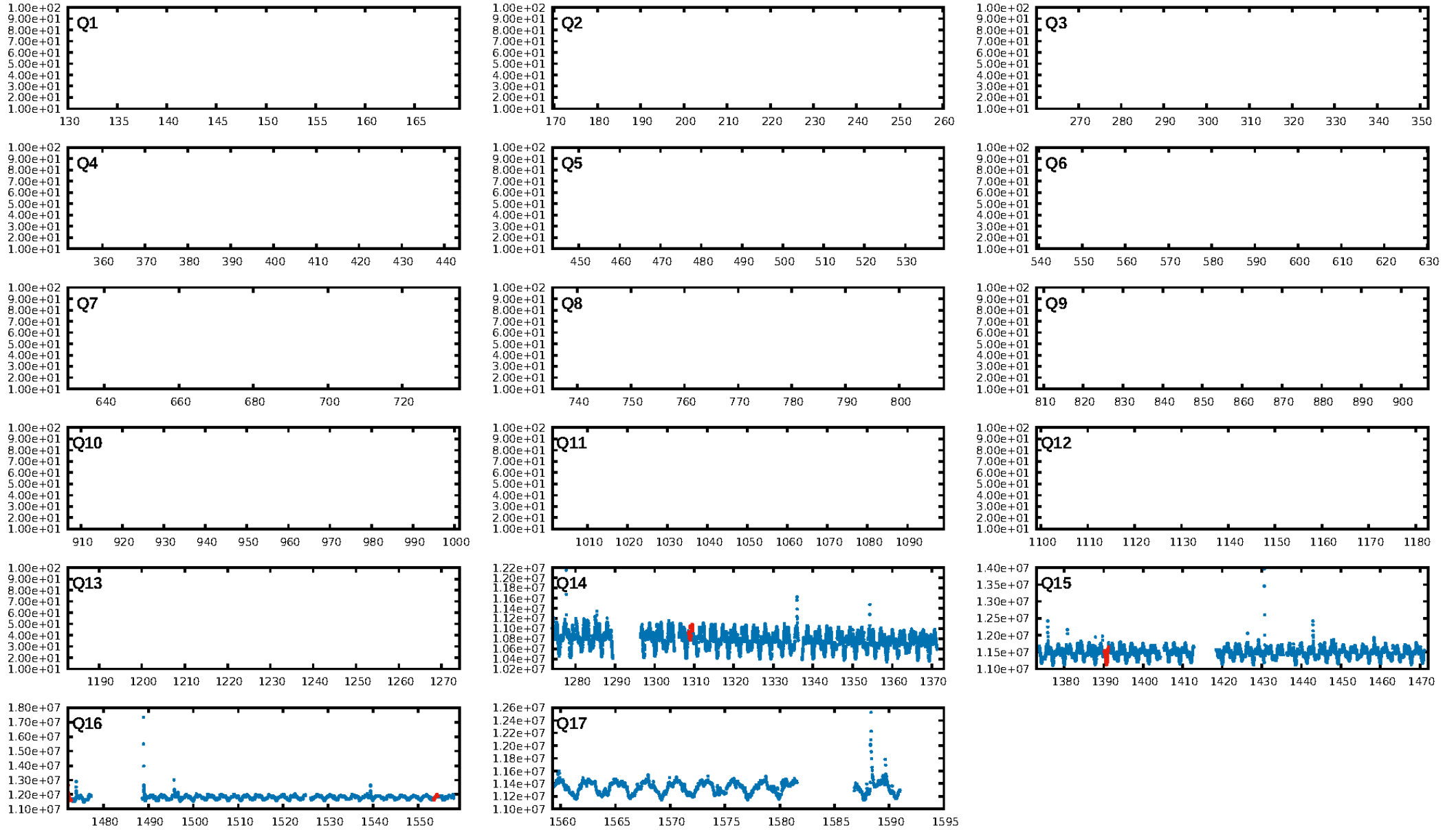
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 59.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.81e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7735
Centroid-sig: 39.2%
Centroid-so: 0.368 arcsec [0.86σ]
OotOffset-rm: 0.135 arcsec [0.65σ]
KicOffset-rm: 0.300 arcsec [2.11σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

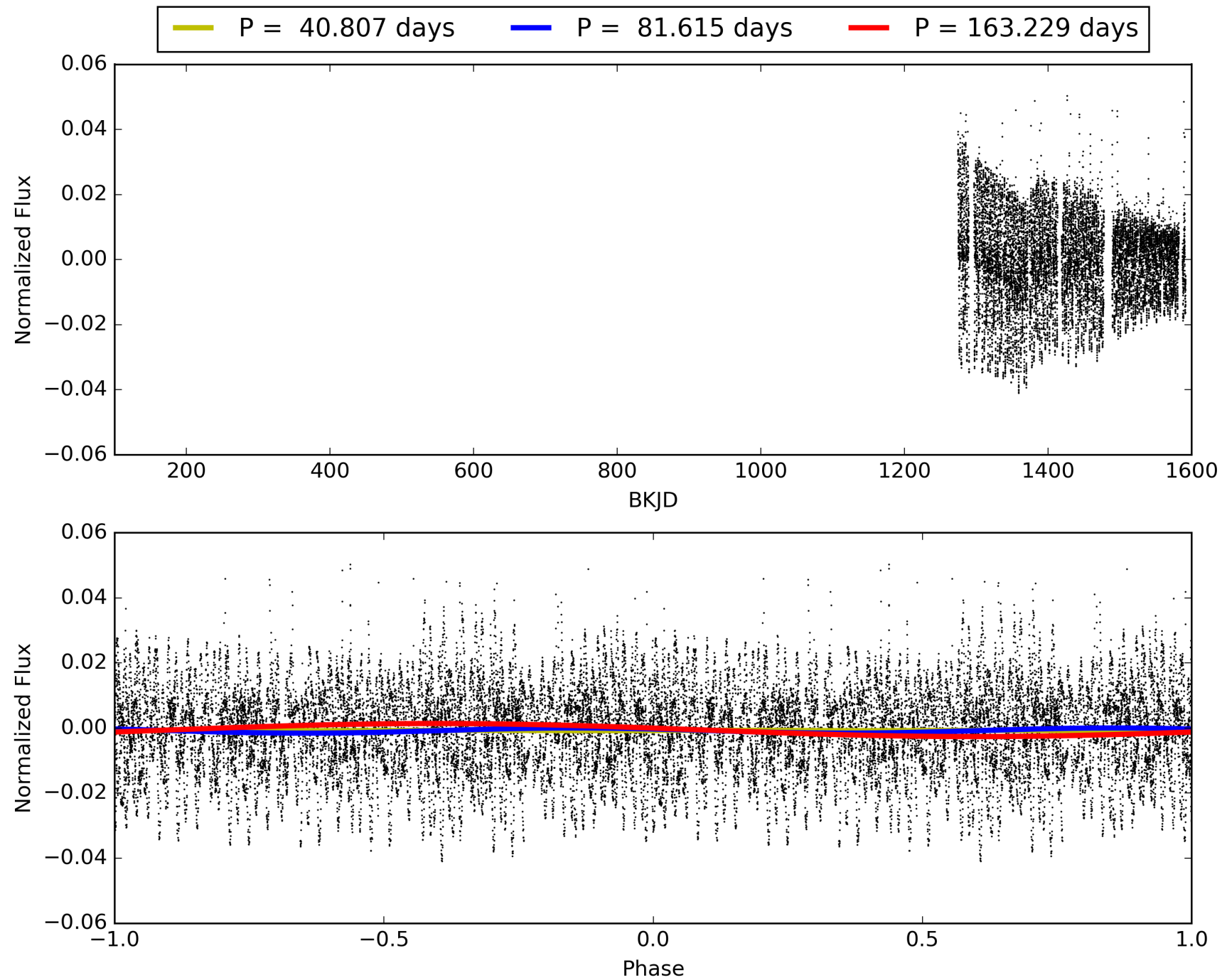
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:54:23 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009090909-01, PDC Light Curves

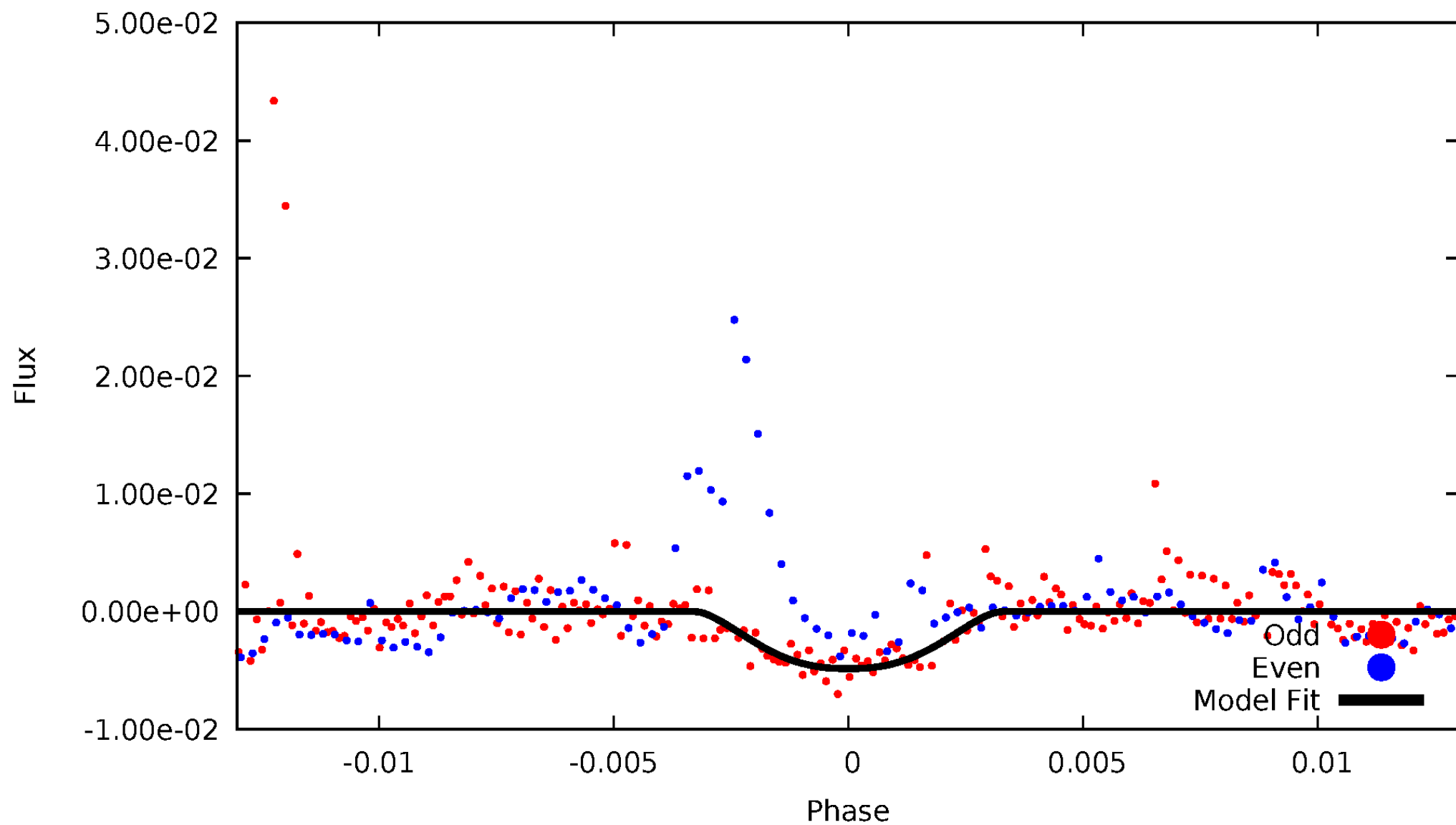


TCE 009090909-01



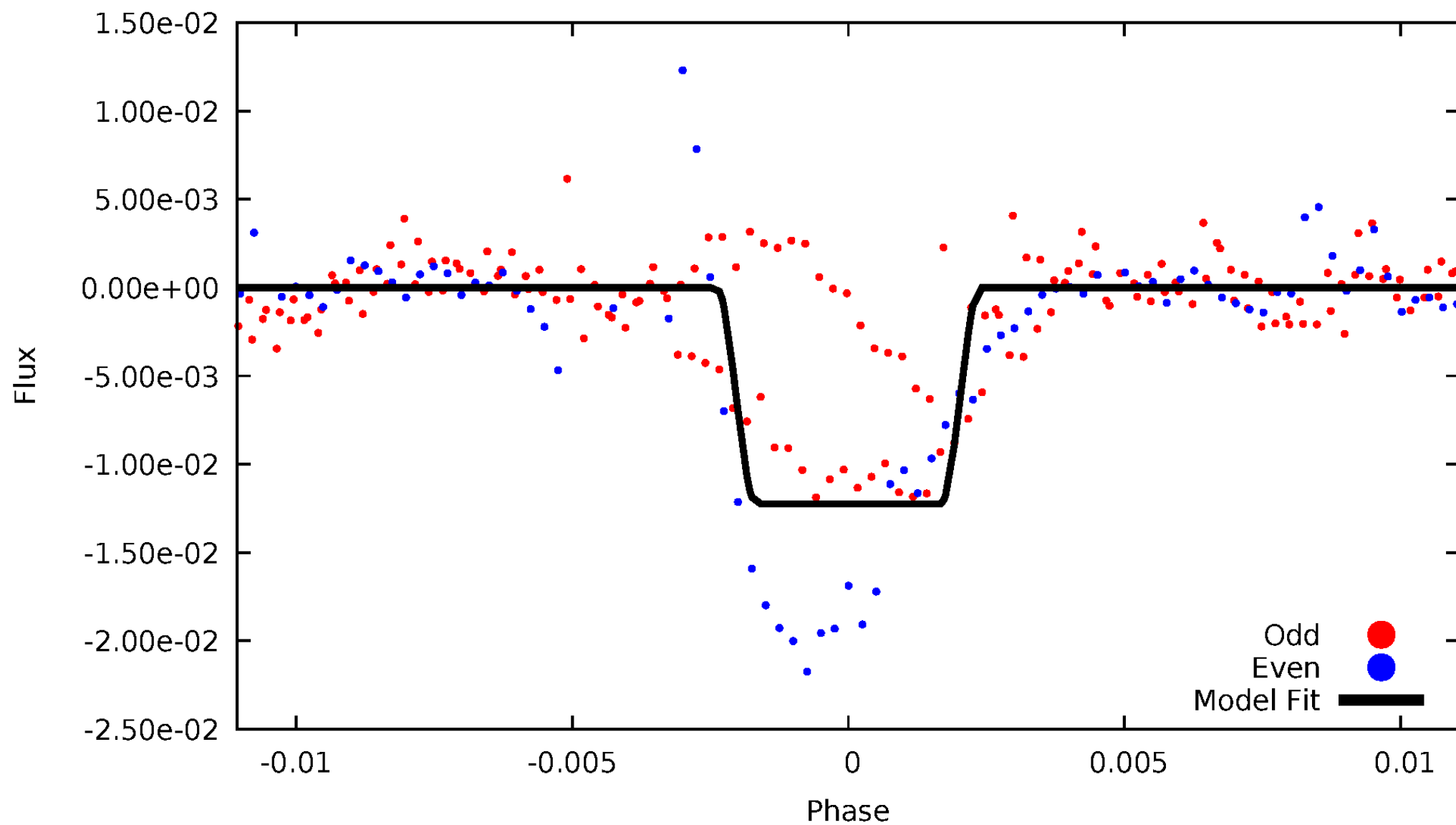
DV Odd/Even

TCE 009090909-01



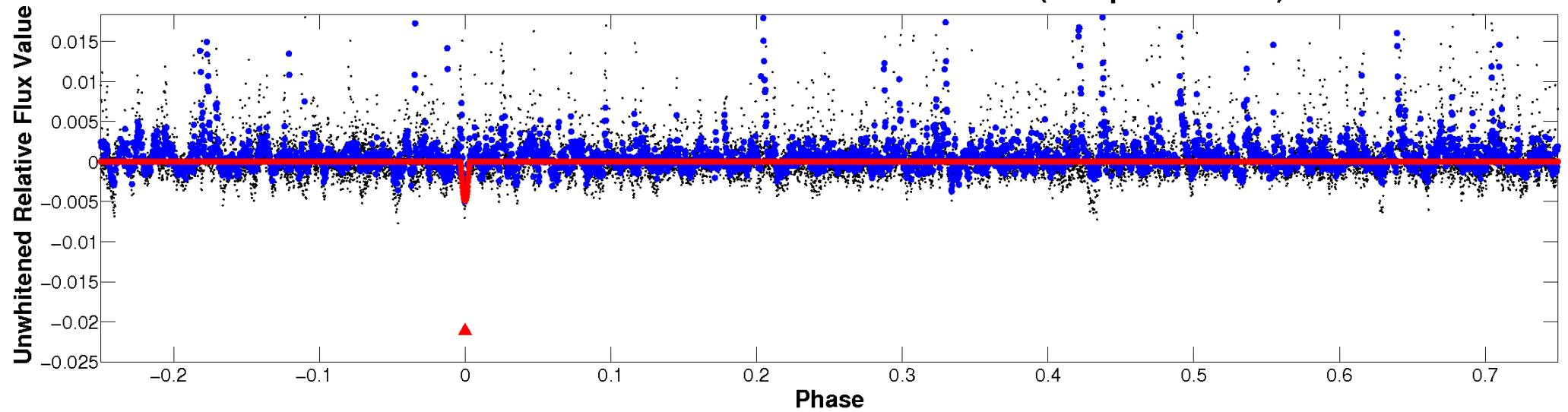
ALT Odd/Even

TCE 009090909-01

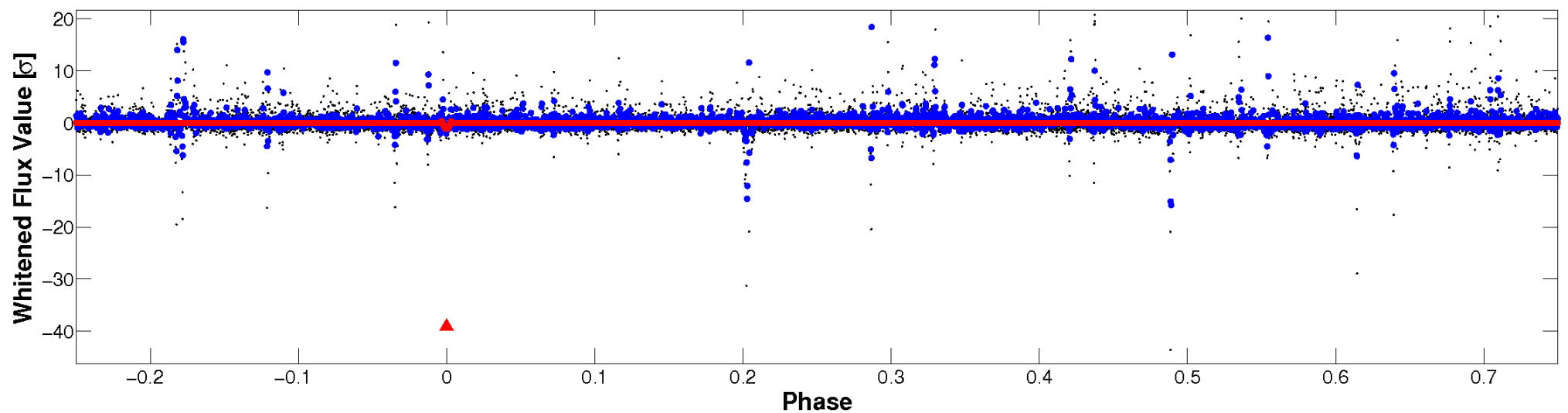


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

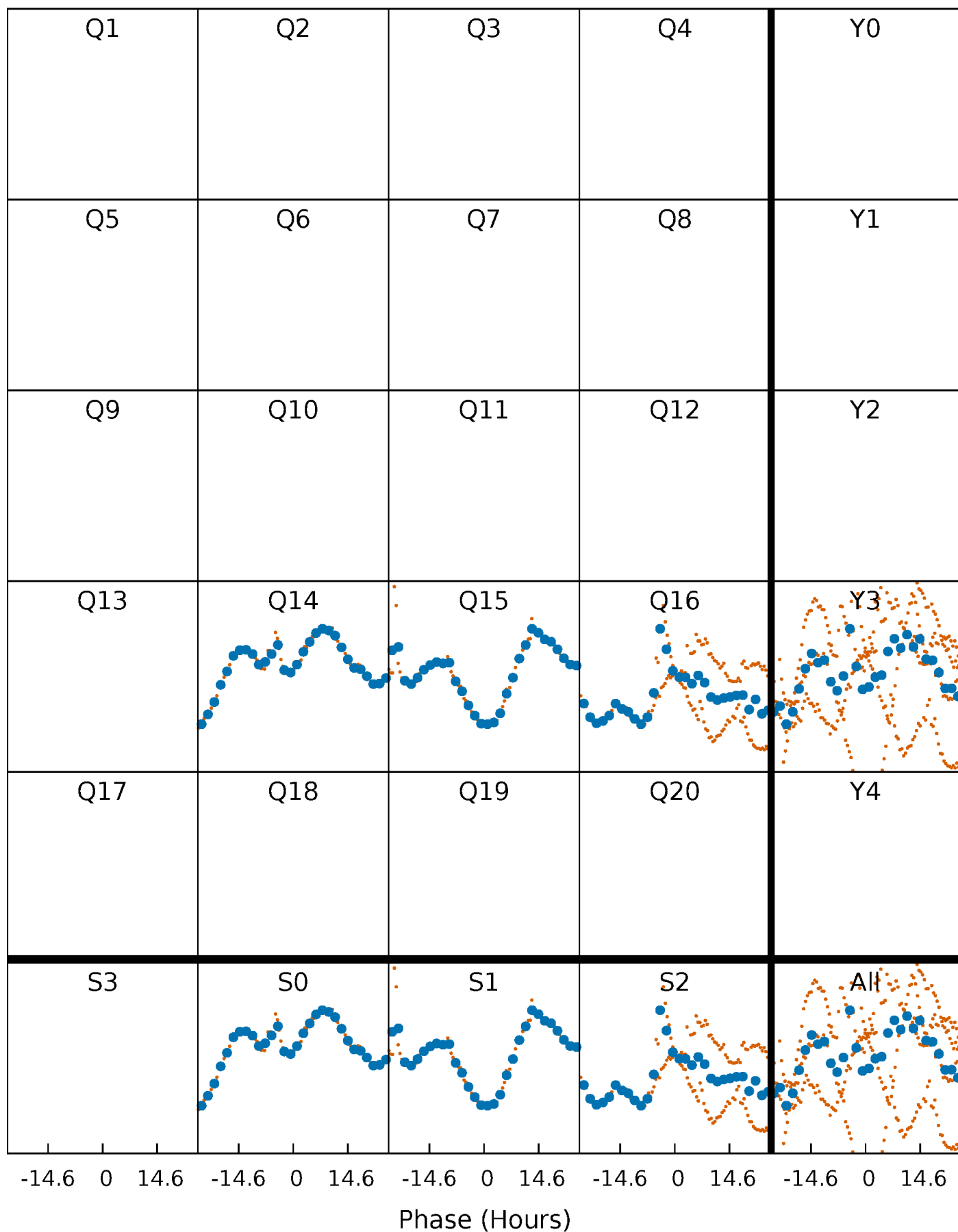


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



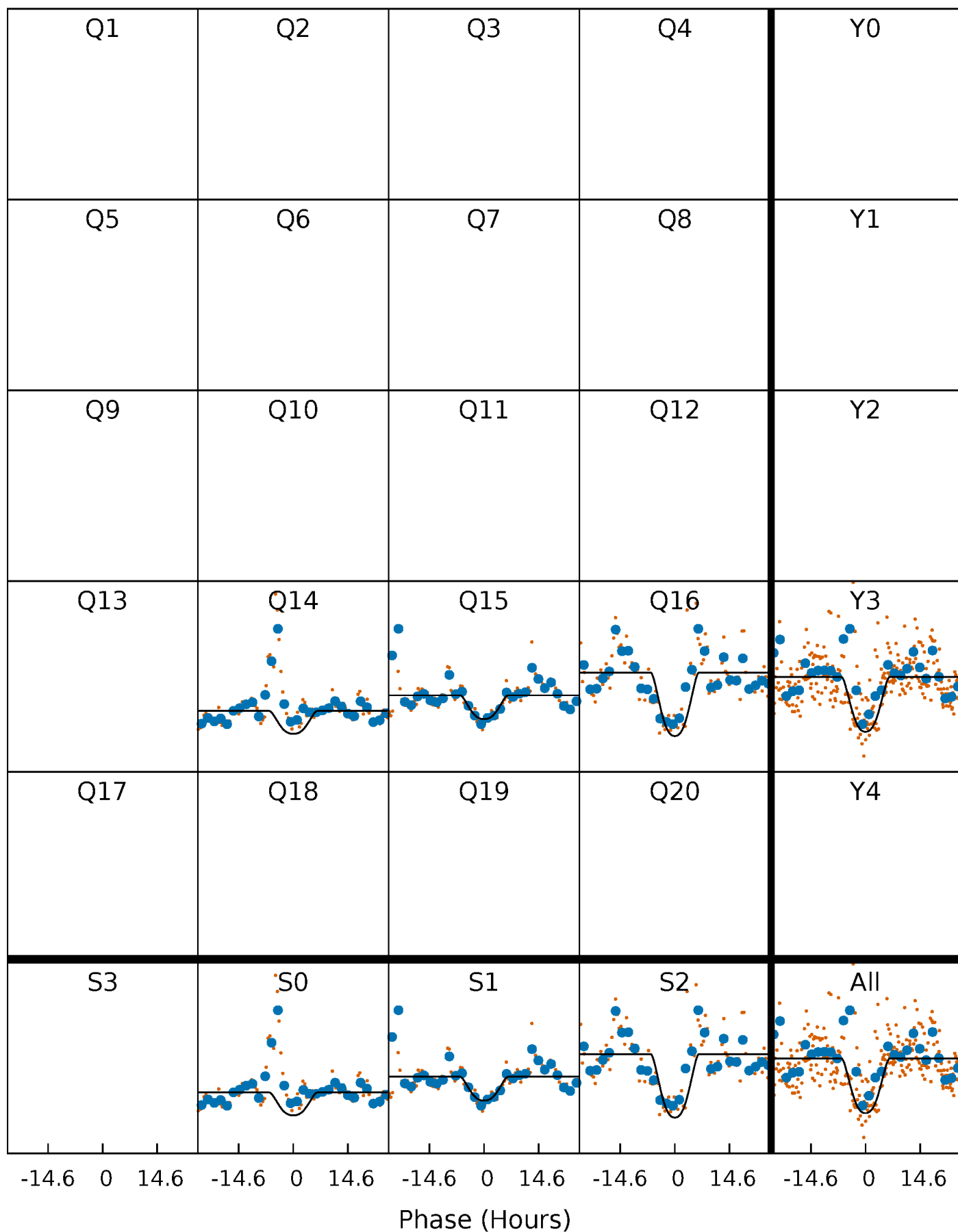
PDC Quarter-Phased Transit Curves

TCE 009090909-01 P= 81.614718 Days $T_0=166.490233$ (BKJD)



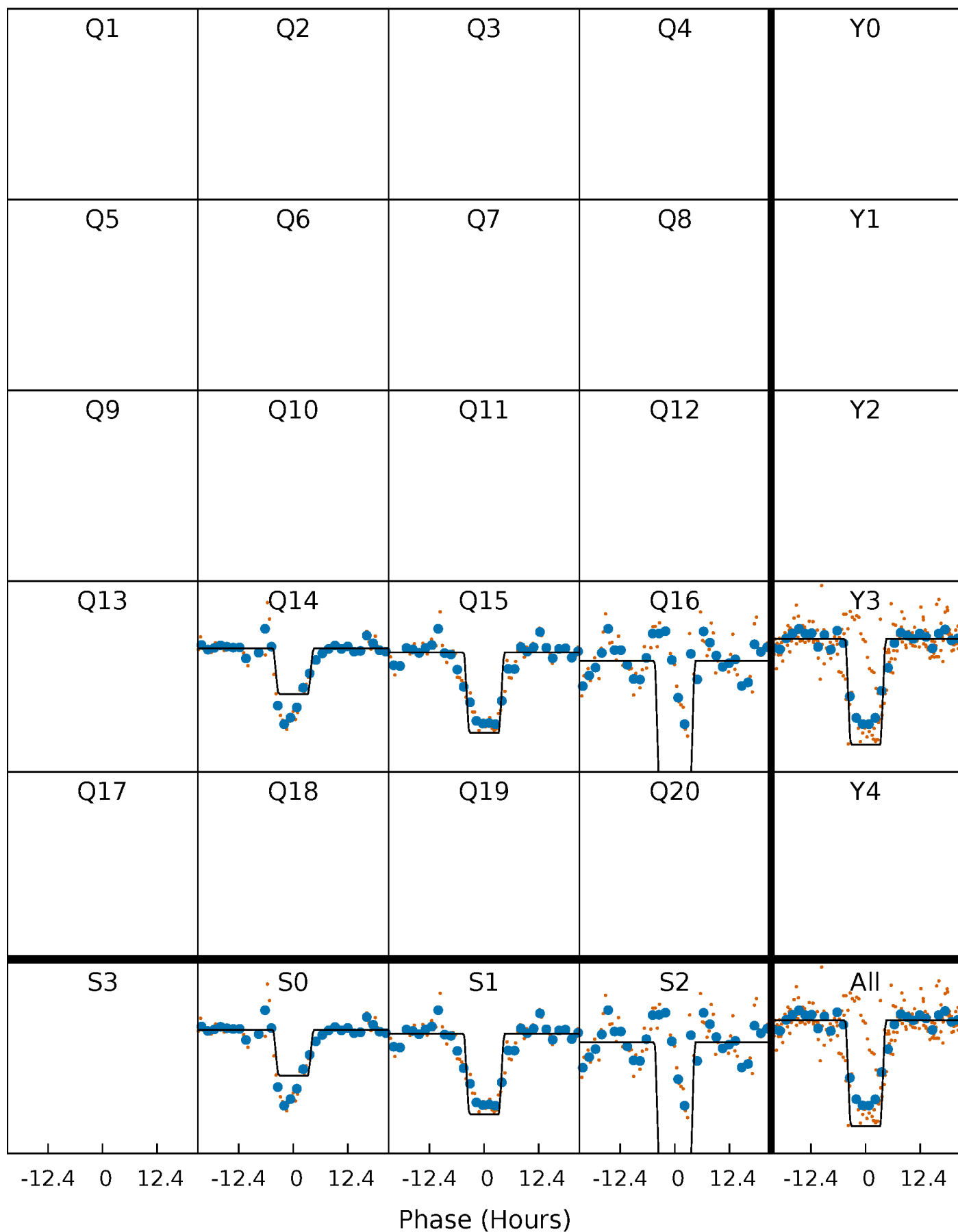
DV Quarter-Phased Transit Curves

TCE 009090909-01 P= 81.614718 Days $T_0=166.490233$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

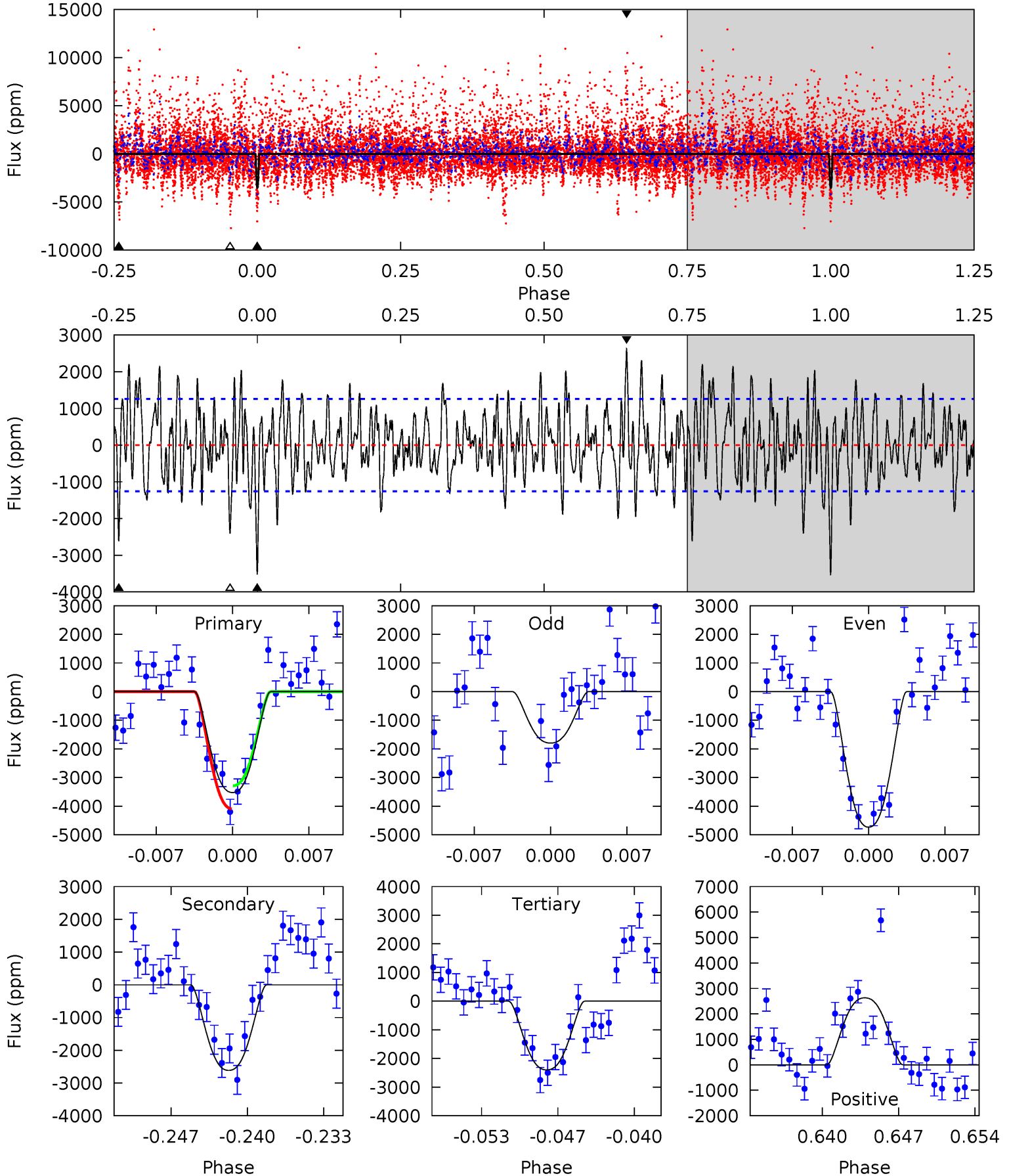
TCE 009090909-01 $P = 81.597678$ Days $T_0 = 166.775320$ (BKJD)



DV Model-Shift Uniqueness Test

009090909-01, P = 81.614718 Days, E = 166.490233 Days

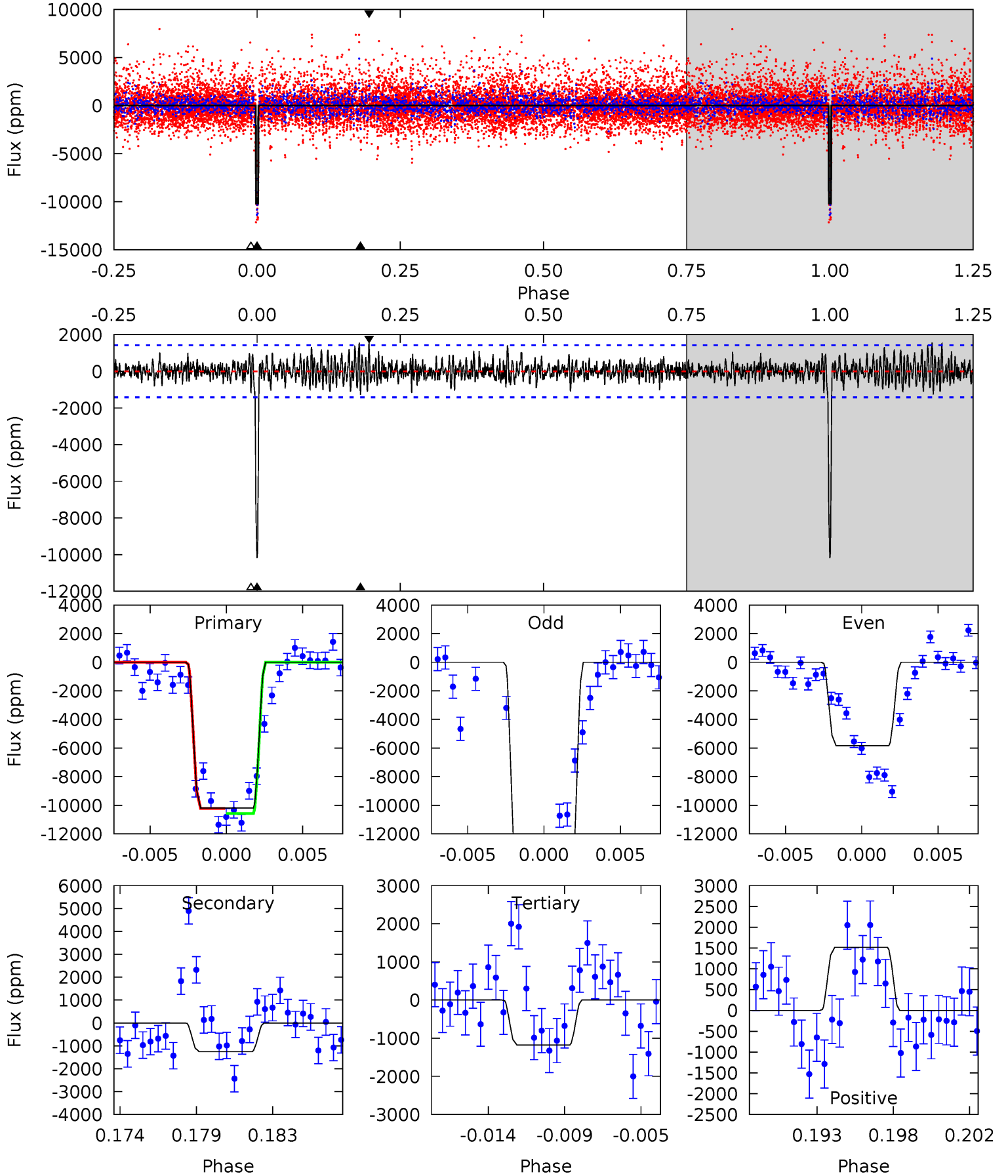
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	10.6	9.72	10.7	5.10	2.71	3.27	4.56	3.62	0.87	-0.07	3.78	0.64	0.43	1.63



Alt Model-Shift Uniqueness Test

009090909-01, P = 81.597678 Days, E = 166.775320 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.1	4.57	4.30	5.52	5.17	2.83	1.37	32.8	31.5	0.28	-0.95	22.4	0.86	0.13	0



Stellar Parameters For KIC 009090909

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3683^{+117}_{-147}	$4.688^{+0.080}_{-0.020}$	$0.560^{+0.050}_{-0.300}$	$0.563^{+0.030}_{-0.083}$	$0.564^{+0.036}_{-0.072}$	$4.449^{+1.718}_{-0.371}$
	+3%/-4%	+2%/-0%	+9%/-54%	+5%/-15%	+6%/-13%	+39%/-8%
Source	KIC0	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009090909-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2615 ± 247	$4.81^{+0.80}_{-0.84}$	305^{+12}_{-13}	3199^{+210}_{-195}	5781^{+2653}_{-1674}
Alt.	-1257 ± 275	$6.62^{+0.93}_{-0.90}$	305^{+12}_{-13}	2638^{+148}_{-129}	1432^{+604}_{-395}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming A=0.3)

A_{obs} = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

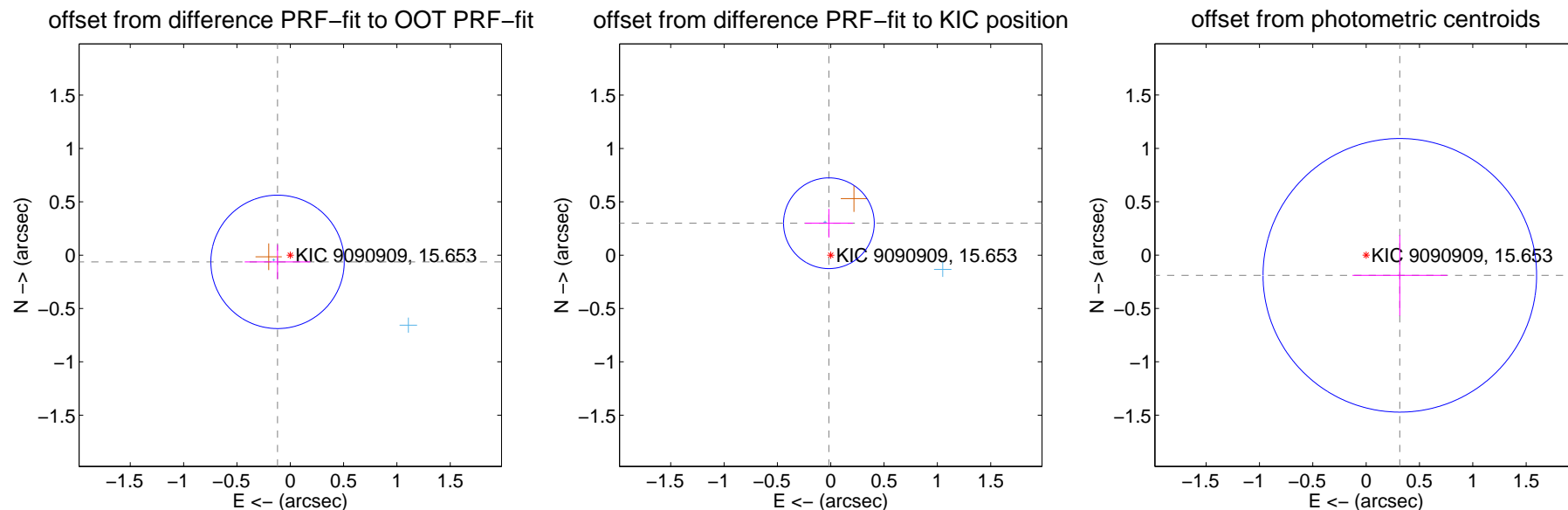
DV Centroid Data

Supplemental centroid analysis for 009090909-01. Kepler magnitude: 15.65. Transit SNR 6.49

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.135 ± 0.208	0.65	0.119 ± 0.308	-0.063 ± 0.161
PRF-fit source offset from KIC position	0.300 ± 0.142	2.11	0.017 ± 0.226	0.299 ± 0.134
photometric centroid source offset	0.37 ± 0.43	0.86	-0.32 ± 0.44	-0.19 ± 0.38



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



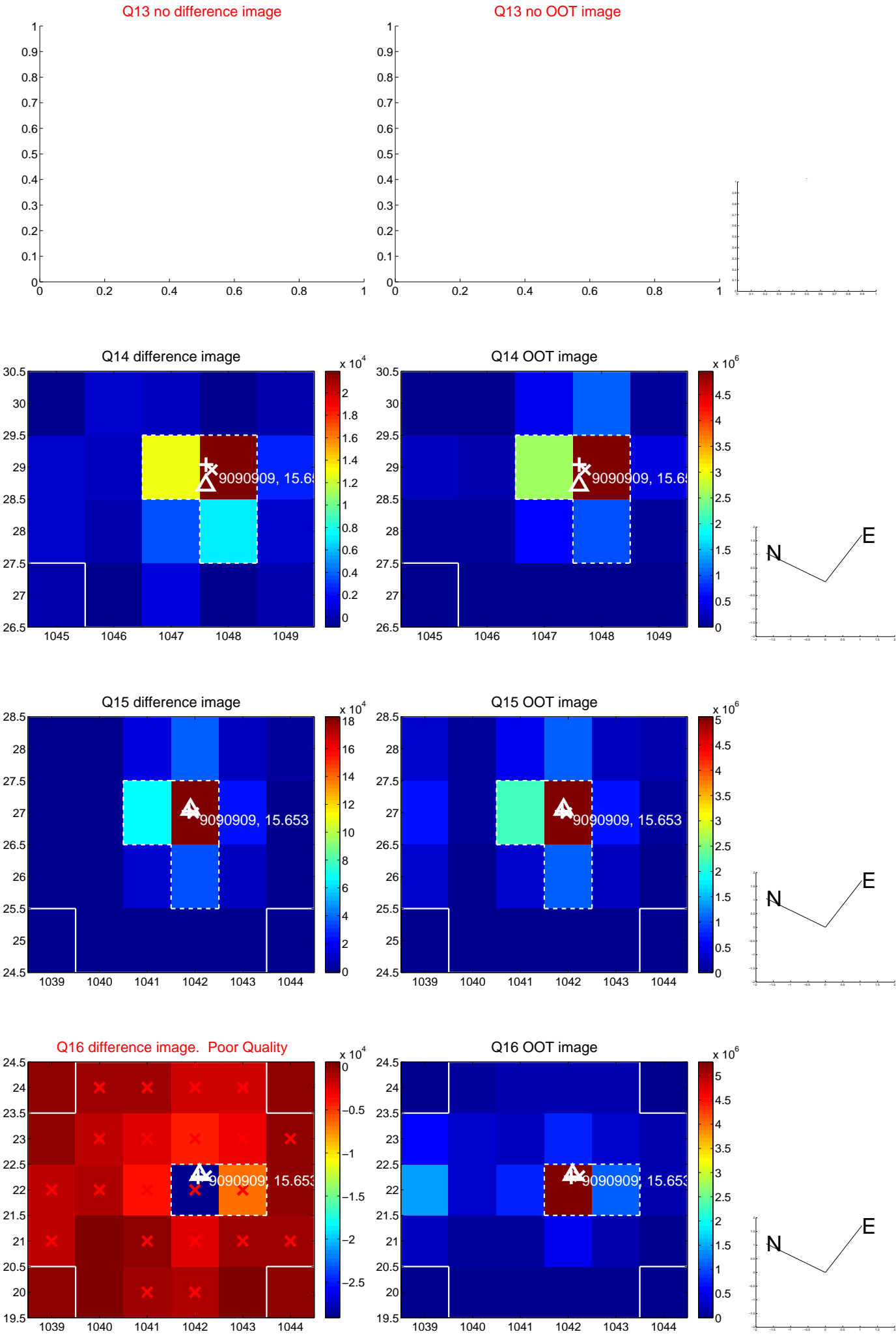
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



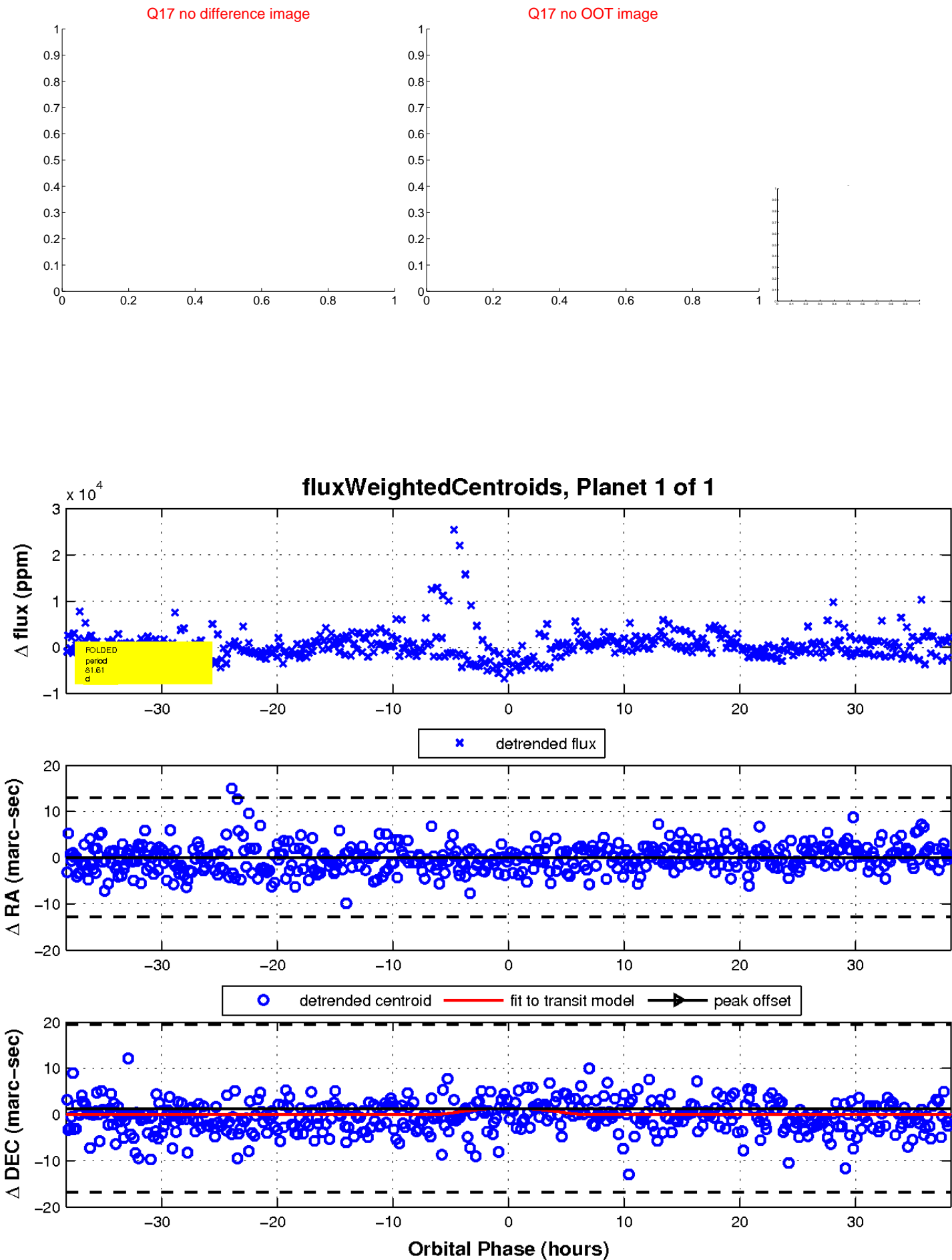
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

